

REMARKS

Reconsideration of the instant application is respectfully requested. The present amendment is responsive to the Office Action of May 4, 2006, in which claims 1-7 are presently pending. Of those, claims 1, 2, 4, 6 and 7 are now rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,503,286 to Nye, III, et al., in view of U.S. Patent 7,025,866 to Collins. In addition, claim 3 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Nye, in view of Collins, and further in view of U.S. Patent 5,334,804 to Love, et al. Claim 5 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Nye, in view of Collins, and further in view of U.S. Patent 6,293,457 to Srivastava, et al. A courtesy copy of the claims in their present form is provided herein. For the following reasons, however, it is respectfully submitted that the application is now in condition for allowance.

Claim 1 is amended as set forth above to more particularly point out that portions of the seed layer are selectively etched down to the top of the TiW layer, as described in paragraph [0014] of the specification and shown in Figures 4-5. The Applicants respectfully submit that this amendment overcomes each of the outstanding claim objections and rejections.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that (1) all elements of the claimed invention are disclosed in the prior art; (2) that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references; and (3) that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165

U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

With regard to the second element, there are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). Furthermore, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

A statement that modifications of the prior art to meet the claimed invention would have been “ ‘well within the ordinary skill of the art at the time the claimed invention was made’ ” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000).

On page 3 of the present Office Action, the Examiner takes the position that Nye teaches selectively removing portions of the seed layer such that remaining seed layer corresponds to a desired location of interconnect metallurgy for the interconnection pad (Nye, column 7, lines 35-37). However, in reviewing Nye, two alternate processes are disclosed for depositing copper upon CrCu. First, the Cu layer can be patterned on the CrCu layer by selective deposition (e.g., through a metal or resist mask), or by blanket deposition followed by copper etching. (Column 7, lines 32-37) Second, the copper

layer can simply be deposited as a blanket layer and not patterned, followed by electroplating on the copper through an insulating mask layer. (Column 7, lines 40-62) In either instance, it will be noted that the CrCu layer beneath the Cu layer is not etched in Nye.


In the present claims, the seed layer is etched so as to stop on the TiW layer. Because the seed layer in Nye is the combination of both the CrCu layer and the Cu layer (and as also set forth in claim 2 of the present application), Nye fails to teach or suggest patterning the CrCu layer in the same manner as the Cu layer. As such, one skilled in the art would not be motivated to apply the seed-patterning configuration in Fig. 6 of Collins to the solder terminal structure of Nye, because the entire thickness of the seed layer (85, 90) is not patterned so as to encapsulate exposed outer sidewalls thereof with respect to the TiW layer.

Moreover, even if one skilled in the art were to be motivated to combine the teachings of Collins and Nye, the result would be the same as is already described in Nye (column 7, lines 32-37); i.e., a patterned copper layer 85 atop the unpatterned CrCu layer 90.

For the above stated reasons, it is respectfully submitted that the present application is now in condition for allowance. No new matter has been entered and no additional fees are believed to be required. However, if any fees are due with respect to this Amendment, please charge them to Deposit Account No. 09-0458 maintained by Applicants' attorneys.

Respectfully submitted,
TIEN-JEN CHANG, ET AL.

CANTOR COLBURN LLP
Applicants' Attorneys

By 
Sean F. Sullivan
Registration No. 38,328
Customer No. 29371

Date: July 31, 2006
Address: 55 Griffin Road South, Bloomfield, CT 06002
Telephone: (860) 286-2929